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| 10/586,635 | 07/19/2006 | Masato Kaneko | 292229US0PCT | 6052 |

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| EXAMINER |
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OLADAPO, TAIWO

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| ART UNIT | PAPER NUMBER |
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1797

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| NOTIFICATION DATE | DELIVERY MODE |
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09/16/2010

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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|------------------------------|--------------------------------------|---------------------------------------|--|
| Office Action Summary | Application No. 10/586,635 | Applicant(s) KANEKO, MASATO | |
| | Examiner TAIWO OLADAPO | Art Unit 1797 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 June 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 and 6-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 6-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

1. The amendment dated 06/11/2010 has been considered and entered for the record. The amendment overcomes the previous rejections which are hereby withdrawn. New rejections are made in view of amendment.

Continued Examination Under 37 CFR 1.114

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 06/11/2010 has been entered.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

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1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claims 1 – 4, 6, 9, 10, 19, 20 – 22, are rejected under 35 U.S.C. 103(a) as being unpatentable over Nagano et al. (US 2003/0153472) in view of Seiki (JP 09-048989A) and further in view of Kamimura et al. (JP 2004-051720A)

6. In regards to claims 1, 2, 4, 19, 20 – 22, Nagano teaches a lubricating oil composition for fluid bearing (title). Nagano in Table 2 teaches base oils of the invention having kinematic viscosity @ 40°C of 8.3, or 7.5 or 7.8, which meets the limitations of the claim (Table 2).

Nagano teaches the composition contains benzotriazole which is a metal deactivator in the amount of 0.03%, and trioctyl phosphate of which is an extreme pressure (EP) additive in the amount of 1%, which meets the claimed limitations [0042, Table 4]. Nagano does not recite the phosphites of the claim or the amount of metal deactivators in the claim.

Seiki is added to teach oil impregnated bearing oils similar to Nagano (title). Seiki teaches the composition can comprise phosphites such as dilauryl phosphites, dioleoyl phosphites etc., [0010] that can be present in amounts of from 0.01 up to 10% by weight of the composition which meets the upper limit of the claimed limitation [0012].

Kamimura teaches oil impregnated bearing oils similar to Nagano [0037]. Kamimura teaches the composition can comprise metal deactivators in amounts of from 0.01 to 0.4% [0034] which overlaps the claimed limitation. In the case where the claimed ranges “overlap or lie inside ranges disclosed by the prior art” a prima facie case of obviousness exists. *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934

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(Fed. Cir. 1990). Kamimura teaches oil that can comprise dithiophosphates or phosphites and therefore does not require the presence of zinc dithiophosphates according to claim 22 [0028].

It would have been obvious for one of ordinary skill in the art at the time of the invention to have used the phosphorus acid esters of Seiki, and metal deactivators in the amounts recited by Kamimura in the invention of Nagano, as the inventions are similarly drawn to oil impregnated sintered bearing oils.

The composition having similar limitations would therefore have the residual amount of oil according to the limitations of the claims.

7. In regards to claim 3, Nagano, Seiki and Kamimura combined teach the oil can comprise further additives such as oxidation inhibitor [Nagano, 0036].

8. In regards to claim 6, Nagano, Seiki and Kamimura combined teach the oil used in oil-impregnated bearings [Nagano, 0001].

9. In regards to claims 9, 10, Nagano, Seiki and Kamimura teach the oil having kinematic viscosity that meets the range as recited.

10. Claims 7, 8, are rejected under 35 U.S.C. 103(a) as being unpatentable over Nagano et al. (US 2003/0153472) in view of Seiki (JP 09-048989A) in view of Kamimura et al. (JP 2004-051720A) and further in view of Masao et al. (JP 09-222125)

11. In regards to claims 7, 8, Nagano, Seiki and Kamimura combined teach the oil used for sintered bearings but do not recite the method of preparing the bearing comprising the steps of sizing, degreasing and impregnating. Masao is analogous art which teaches the process of making oil impregnated bearings comprising as sizing step, a degreasing or washing process to removed entrained sizing lubricant, followed by an oil impregnation step [0010 – 0012]. It

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would have been obvious to one of ordinary skill in the art at the time of the invention to have used the method of Masao to prepare the oil impregnated bearing of Nagao, as the method is suitable for preparing oil impregnated bearings.

12. Claims 11 – 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nagano et al. (US 2003/0153472)) in view of Seiki (JP 09-048989A) in view of Kamimura et al. (JP 2004-051720A) and further in view of Gunsel et al. (US 2002/0114980)

13. In regards to claim 11, Nagano, Seiki and Kamimura combined teach a lubricating oil for oil impregnated bearings used in magnetic based information devices such as hard disk drives (HDD's) and video cameras [Nagano, 0002, 0003, 0068] comprising PAO's or poly- α -olefins which are synthetic oils, and mineral oils but does not particularly teach the combination [Nagano, 0040].

Gunsel teaches lubricant's for magnetic medium for information storage/retrieval such as computer hard disc drives (HDD's) compact disk drives, audio and video equipments similar to the invention of Nagano (abstract). Gunsel teaches the lubricant one or more lubricants can be used for lubrication including mineral oils, poly- α -olefins etc [0018, 0019]. It would have been obvious to one of ordinary skill in the art at the time of the invention to have used mineral and synthetic lubricants for lubricating the device of Nagano, as Gunsel teaches they are suitably used together for lubricating magnetic based devices.

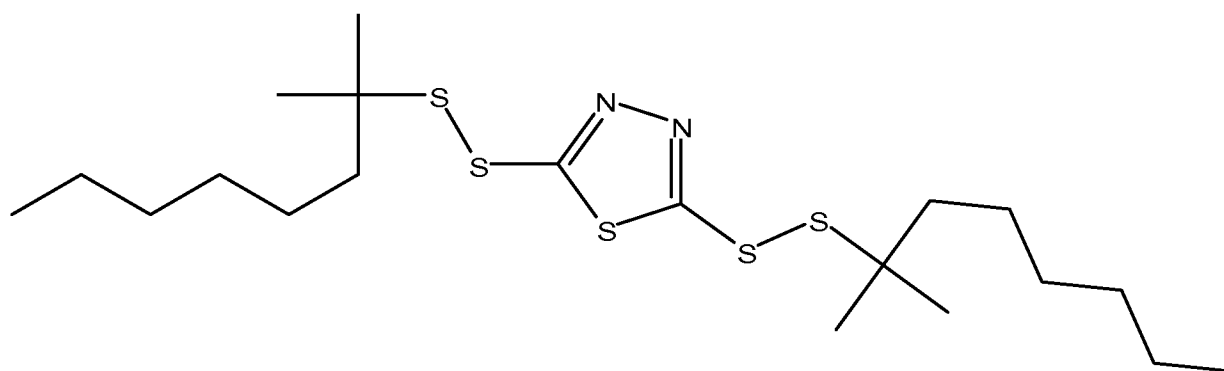
14. In regards to claim 12, Nagano, Seiki and Kamimura and Gunsel combined teach the composition comprising PAO based synthetic oils as previously stated.

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15. In regards to claim 13, Nagano, Seiki and Kamimura and Gonsel combined teach the lubricant, wherein the lubricant comprises antiwear additives such as tricresyl phosphate and triaryl phosphite [Gonsel, 0140]. Antiwear additives also serve as extreme pressure additives.

16. In regards to claim 14, Nagano, Seiki and Kamimura and Gonsel combined teach the lubricant comprises benzotriazole [Gonsel, 0140].

17. In regards to claim 17, Nagano, Seiki and Kamimura and Gonsel combined teach the lubricant comprises 2,5-bis (tert-nonyldithio)-1,3,4-thiadiazole [Gonsel, 0140] having the structure as shown below;



2,5-bis (tert-nonyldithio)-1,3,4-thiadiazole

The structure meets the first of the three structures represented as (IX) in claim 17 when d, e are each 2, and R₁₁, R₁₂ are each C₉ groups

18. Claims 15 – 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nagano et al. (US 2003/0153472)) in view of Seiki (JP 09-048989A) in view of Kamimura et al. (JP 2004-051720A) and further in view of Dorer (US 5,275,630) and Cahoon (US 5,484,542)

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19. In regards to claims 15 – 17, Nagano, Seiki and Kamimura teach the lubricating oil but do not particularly recite they contain thiadiazole compounds. Dorer teaches additives that can be used in lubricating oils and fuels (column 8 lines 53 – 58). The additives contain thiadiazoles that can be used as stabilizers against oxidation of compositions (column 6 lines 42 – 45).

Cahoon teaches thiadiazoles are of the formula (I) wherein when x and y are each 2, and R₁ and R₂ are C₈ groups, the structure is 2,5,-bis (n-octyldithio)-1,3,4-thiadiazole which meets the limitations of claims 15 – 17 (column 3 lines 40 – 68). It would have been obvious for one of ordinary skill in the art at the time of the invention to have used the thiadiazole compounds of Dorer in the invention of Nagano as Cahoon teaches they are suitable as oxidation inhibitors for lubricants.

20. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nagano et al. (US 2003/0153472) in view of Seiki (JP 09-048989A) in view of Kamimura et al. (JP 2004-051720A) and further in view Nakanishi et al. (US 6,586,376)

21. In regards to claim 18, Nagano, Seiki and Kamimura teach a lubricating oil for oil impregnated bearings but do not teach the pour point of the oil. Nakanishi teaches oils for oil impregnated bearing similar to Nagano (column 13 lines 60 – 67). Nakanishi teaches the pour point of the oil can be -27.5 which meets the limitation of the claim (Table 5). It would have been obvious for one of ordinary skill in the art at the time of the invention to have used oils having the pour point recited by Nakanishi in the invention of Nagano, as Nakanishi teaches oils suitable for use in oil impregnated bearings.

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Response to Arguments

22. Applicant's arguments with respect have been considered but are moot in view of the new ground(s) of rejection.

23. The applicant has provided data showing that zinc dithiophosphates (ZDTP) as taught by Hata perform poorly in oil impregnated bearings which is persuasive. Therefore the rejections in view of Hata are overcome. However, new rejections are made over Nagano in view of Seiki teaching hydrogen phosphite EP additives of the claim but not comprising ZDTP. Kamimura is also added to teach amounts of metal deactivators useful in oils for oil impregnated sintered bearings.

24. The only arguments made by the applicant are based on the reference by Hata which has been withdrawn. Therefore, rejections based on combinations with other references are properly maintained.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to TAIWO OLADAPO whose telephone number is (571)270-3723. The examiner can normally be reached on 8:00 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on (571)272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

TO

/Ellen M McAvoy/
Primary Examiner, Art Unit 1797